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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,713	12/07/2001	Ryoichi Mukai	0671.66045	5134

24978 7590 12/28/2004

GREER, BURNS & CRAIN  
300 S WACKER DR  
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CHICAGO, IL 60606

EXAMINER
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RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n N .

10/008,713

Applicant(s)

MUKAI, RYOICHI

Examiner

Holly Rickman

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-- Th MAILING DATE of this c mmunication appears on the cover sheet with th correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2004 and 26 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,10,12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,10,12,15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/26/04 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The rejection of claim 14 under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (English translation of JP 64-79919) is withdrawn in view of the cancellation of claim 14.

4. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by or under 35 U.S.C 103(a) as being unpatentable over Kubota et al. (English translation of JP 64-79919).

Kubota et al. disclose a method of making a magnetic recording medium by laminating a non-magnetic Cr underlayer and a magnetic layer having Co alloy magnetic layer on a substrate followed by annealing such that Cr is diffused from the underlayer into the crystal grain

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boundaries of the magnetic (see page 5 and Ex. 1). The reference discloses ten alloys which may be used for the Co based magnetic layer including CoPt (see p. 7, first full paragraph). It is the Examiner's contention that the group of disclosed alloys is small enough that one of ordinary skill in the art would immediately envisage an embodiment of the invention using CoPt.

*With respect to the limitation of claim 14 requiring that no bias voltage be applied to the substrate, it is noted that the reference does not describe the application of a bias voltage to the substrate in making the recording medium disclosed therein. The Examiner contends that it is not necessary that the applied reference specifically point out the absence of a feature in order to anticipate this claim limitation. Furthermore, it is noted that the claim limitation requiring sputtering at a bias voltage of 0V has been interpreted to mean that no bias voltage is applied. Thus, the absence of a bias voltage application step in Kubota et al. is sufficient to anticipate this negative limitation.*

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (English translation of JP 64-79919).

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Kubota et al. disclose a magnetic recording medium having a substrate a non-magnetic Cr underlayer and a magnetic layer having Co magnetic grains with non-magnetic Cr grain boundaries (see page 5 and Ex. 1). In example 1, the thickness of the Cr underlayer is 500 Å (i.e., 50 nm). The reference is silent with respect to the particular amount of Cr that is present in the Co magnetic layer. However, the reference does teach that Cr is diffused from the underlayer into the crystal grain boundaries of the magnetic layer thereby improving coercive force by reducing the size of each “magnetic zone” (see p. 6, lines 1-2).

*The Examiner contends that while the reference does not specifically state that the amount of Cr diffused into the grain boundaries affects the coercivity of the medium by directly reducing the size of each “magnetic zone”, this fact would have been clear to one of ordinary skill in the art. If a very small percentage of Cr was added to the grain boundaries of the magnetic layer, the magnetic grains would not be fully decoupled. Thus, the size of the magnetic zones would include multiple grains. If an optimal amount of Cr is added to the grain boundaries, the magnetic grains can be fully isolated thereby creating single grain magnetic zones.*

It would have been obvious to one of ordinary skill in the art at the time of invention to determine the optimal amount of non-magnetic Cr to add to the Co magnetic layer in order to achieve optimal coercivity. Such an optimization would have been well within the purview of one of ordinary skill in the art since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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***Response to Arguments***

7. Applicant's arguments filed 8/26/04 and 10/1/04 have been fully considered but they are not persuasive for the reasons set forth in the italicized paragraphs set forth in sections 3 and 5, above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773

December 23, 2004